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RESEARCH ARTICLE

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Notulae to the Italian alien vascular flora: 8

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Abstract

In this contribution, new data concerning the distribution of vascular flora alien to Italy are presented. It includes new records, confirmations, exclusions, and status changes for Italy or for Italian administrative regions of taxa in the genera *Bunias*, *Calocedrus*, *Calycanthus*, *Celosia*, *Clerodendrum*, *Convolvulus*, *Crassula*, *Cyclamen*, *Datura*, *Dicliptera*, *Eragrostis*, *Erigeron*, *Gamochaeta*, *Gazania*, *Impatiens*, *Kolkwitzia*,

Leucaena, *Ludwigia*, *Medicago*, *Muscari*, *Nigella*, *Oenothera*, *Opuntia*, *Paulownia*, *Petroselinum*, *Phyllostachys*, *Physalis*, *Pseudosasa*, *Quercus*, *Reynoutria*, *Roldana*, *Saccharum*, *Sedum*, *Semiarundinaria*, *Senecio*, *Sisyrinchium*, *Solanum*, *Sporobolus*, *Tulipa*, *Vachellia*, *Verbena*, and *Youngia*. Nomenclatural and distribution updates published elsewhere are provided as Suppl. material 1.

Keywords
Alien species, floristic data, Italy

How to contribute

The text for the new records should be submitted electronically to Chiara Nepi (chiara.nepi@unifi.it). The corresponding specimen along with its scan or photograph has to be sent to FI Herbarium: Museo di Storia Naturale (Botanica), Sistema Museale di Ateneo, Via G. La Pira 4, 50121 Firenze (Italy). Those texts concerning nomenclatural novelties (typifications only for accepted names), status changes, exclusions, and confirmations should be submitted electronically to: Gabriele Galasso (gabriele.galasso@comune.milano.it). Each text should be within 2,000 characters (spaces included).

Floristic records

Bunias orientalis L. (Brassicaceae)

+ (NAT) **EMR**. – Status change from casual to naturalized alien for the flora of Emilia-Romagna.

In Italy, this species was already cultivated in botanical gardens in the late 18th century (e.g., in Pavia, see Anonymous 1785) and was first recorded as a casual alien in 1897 (Penzig 1897; Béguinot and Mazza 1916). *Bunias orientalis* now occurs as a casual alien in most of the northern regions, with the exceptions of Piemonte and Friuli Venezia Giulia, where it is considered naturalized (Galasso et al. 2018a). In Emilia-Romagna, it is known as casual in the province of Ferrara (Piccoli et al. 2014). On July 2nd, 2019, a large population was discovered in the locality Casino of the former municipality of Nibbiano (now Alta Val Tidone), province of Piacenza (WGS84: 44.945631N, 9.332003E). Here, fruiting individuals form a thick stand of 3,350 m^2, with a 75% cover, on waste land colonized by *Artemisia vulgaris* L., *Cirsium arvense* (L.) Scop., *Elymus repens* (L.) Gould subsp. *repens*, and *Sambucus ebulus* L. More than 1,200 rosettes were counted across a mowed wheat field of 31,000 m^2 in locality Casa Castellina (WGS84: 44.946498N, 9.330900E) and further individuals were observed along the nearby roadsides. This species, similarly to other European countries (see e.g., Clement and Foster 1994), was likely introduced as a grain impurity. The pronounced tendency to invasiveness in these localities needs to be monitored.

N.M.G. Ardenghi, S. Bodino, S. Lodetti

Calocedrus decurrens (Torr.) Florin (Cupressaceae)

+ (CAS) **TOS**: Firenze (Firenze), Parco delle Cascine, alla confluenza tra il Torrente Mugnone e il Fiume Arno (WGS84: 43.790598N, 11.197569E), 50 m, 3 February 2019, *L. Pinzani* (FI). – Casual alien species new for the flora of Toscana.

Calocedrus decurrens has been already recorded as casual in Lombardia, Umbria, and Sardegna (Galasso et al. 2018a). Some young individuals originated by seeds from nearby cultivated plants were found in Firenze, at the Cascine Park.

L. Pinzani

Calycanthus floridus L. (Calycanthaceae)

+ (CAS) **MAR**: San Benedetto del Tronto (Ascoli Piceno), aiuola presso Viale delle Palme (WGS84: 42.949722N, 13.884780E), epifita su stipite di *Phoenix canariensis*, ca. 8 m, 9 July 2019, *N. Olivieri* (FI). – Casual alien species new for the flora of Marche.

Calycanthus floridus is an ornamental species native to southeastern North America and introduced in Italy in 1788 (Maniero 2015). In Italy, it is known as casual alien only in Toscana (Galasso et al. 2018a). Some young individuals of the species have developed as epiphytes on the trunk of a young *Phoenix canariensis* H.Wildpret, settling among the remains of fibrous tissue present among the stumps of the leaf rachids. The plants developed from seeds produced by a shrub cultivated in a flowerbed at a short distance. The area is located in a rather sheltered position due to the presence of groups of *Pinus halepensis* Mill. subsp. *halepensis* and alignments of buildings that limit insolation and reduce the influence of the eastern sea winds, creating a cooler microclimate.

N. Olivieri

Celosia argentea L. (Amaranthaceae)

+ (CAS) **SIC**: Polizzi Generosa (Palermo), strada SS643 (WGS84: 37.839167N, 13.960000E), bordo stradale, ca. 550 m, 12 September 2005, *G. Domina, S.L. Jury* (PAL); Ciminna (Palermo), strada SP33 (WGS84: 37.895676N, 13.544894E), bordi stradali, ca. 600 m, 7 October 2018, leg. *F. Scafidi*, det. *F. Scafidi, G. Domina* (FI). – Casual alien species confirmed for the flora of Sicilia.

This species was likely introduced in Italy for ornamental purposes, and the individuals found along the roadside may have originated from cultivated plants growing nearby. This species was identified according to Iamonico (2013). In Galasso et al. (2018a), it is reported as casual alien for many Italian administrative regions, but not recently recorded from Sicilia.

F. Scafidi, G. Domina

Clerodendrum trichotomum Thunb. (Lamiaceae)

+ (CAS) **TOS**: Borgo San Lorenzo (Firenze), fraz. Panicaglia, ex stazione ferroviaria lungo la ferrovia Faentina (WGS84: 43.978605N, 11.407556E), alcune piante spontaneizzate ai

margini di un giardino in vicinanza di piante adulte coltivate, 281 m, 8 November 2018, *M. Mugnai*, *A. Misuri*, *G. Ferretti* (FI). – Casual alien species new for the flora of Toscana.

This species was already recorded in Italy as naturalized, mostly in northern Italy. Some young individuals were found at the railway station of Panicaglia, probably originating from adult fruiting plants of a neighboring garden. Given the ephemeral condition of the occurrence site, we consider this species as casual for Toscana.

M. Mugnai, A. Misuri, L. Lazzaro

Convolvulus sabatius Viv. subsp. *mauritanicus* (Boiss.) Murb. (Convolvulaceae)

+ (NAT) **PUG**: Giovinazzo (Bari), tra Giovinazzo e Santo Spirito (comune di Bari) (WGS84: 41.179111N, 16.689172E), margine stradale, 3 m, 29 May 2019, leg. *V. Buono*, det. *R.P. Wagensommer* (FI, BI Nos. 42141, 42142); Lecce (Lecce), presso il cimitero (WGS84: 40.359449N, 18.165857E), aiuola incolta, 40 m, 15 June 2019, *P. Medagli* (LEC). – Naturalized alien subspecies new for the flora of Puglia.

Convolvulus sabatius was first recorded from Puglia near Giovinazzo (Bianco 1969) and then collected in Salento (Marchiori et al. 1993), Bari and Monopoli (Perrino et al. 2013). These collections were all attributed to *C. sabatius* subsp. *sabatius*. Our gatherings, from Giovinazzo and Lecce, show long spreading hairs on stems, leaves and calyx and are, therefore, attributed to *C. sabatius* subsp. *mauritanicus*, according to Carine and Robba (2010) and Wood et al. (2015). Consequently, we consider *C. sabatius* subsp. *sabatius* as recorded from Puglia by mistake (Bartolucci et al. 2019).

R.P. Wagensommer, V. Buono, P. Medagli

Crassula muscosa L. (Crassulaceae)

+ (CAS) **MAR**: San Benedetto del Tronto (Ascoli Piceno), Via C. Colombo (WGS84: 42.956186N, 13.882666E), epifita su stipite di *Phoenix canariensis*, ca. 6 m, 9 July 2019, *N. Olivieri* (FI). – Casual alien species new for the flora of Marche.

Crassula muscosa is native to southern Africa and is widely cultivated as ornamental. In Italy, it is known as casual alien in Toscana, Campania, and Sicilia, while it is considered naturalized in Liguria, Calabria, and Sardegna (Galasso et al. 2018a). Some individuals of this species grow as epiphytes on the trunk of a *Phoenix canariensis* H.Wildpret inside the city. The plants have developed among the residues of fibrous tissue between the remains of the cut leaf rachids, in a partially shaded position. Individuals may have arisen *via* vegetative propagation from fragments of plants grown for ornamental purposes in nearby buildings.

N. Olivieri

Cyclamen persicum Mill. (Primulaceae)

+ (CAS) **LIG**: Genova (Genova), lungo Via Tortona (WGS84: 44.42558N, 8.95276E), a bordo strada, nelle crepe dell'asfalto, 81 m, 18 April 2019, *A. Di Turi*, *C. Aristarchi* (FI, GE). – Casual alien species new for the flora of Liguria.

Cyclamen persicum is a widely cultivated plant, whose native range extends from Algeria to the eastern Mediterranean. It is reported in Italy as a casual alien for Lombardia (Banfi and Galasso 2010), Sardegna (Lazzeri et al. 2015), and Lazio (Nicolella 2018). Well-developed specimens were first recorded in 2000 in Viale G. Odino in the centre of Genova. Recently other specimens have been found at three different sites, both in the city centre (Via Fieschi, WGS84: 44.403397N, 8.935548E, 36 m) and in more peripheral sites (Via V. Bocciardo, WGS84: 44.404441N, 8.993866E, 168 m; and Via Tortona). All grow in the cracks of sidewalks, without any other species nearby. One of them was in bloom when recorded (April 2019).

A. Di Turi, C. Aristarchi

Datura wrightii Regel (Solanaceae)

+ (CAS) **MAR**: Urbino (Pesaro e Urbino), fraz. Canavaccio, lungo il Fiume Metauro (WGS84: 43.688780N, 12.700244E), greto fluviale, ca. 175 m, 13 September 2018, *L. Gubellini*, *N. Hofmann* (FI, PESA). – Casual alien species new for the flora of Marche.

Datura wrightii is an annual plant native to the southwestern United States and Mexico (Verloove 2008). It is reported as casual alien in almost all regions of northern and central Italy (Lombardia, Veneto, Trentino-Alto Adige, Friuli Venezia Giulia, Liguria, Emilia-Romagna, Umbria, Lazio, Abruzzo, Campania, Puglia, and Calabria), as naturalized alien for Toscana and Sicilia, and as invasive alien for Sardegna (Galasso et al. 2018a). In Marche, a single individual was observed with abundant flowers and fruits in a stony bank along the Metauro River, far from gardens and urban centre. This species has been long confused with the related *D. inoxia* Mill., less common in Italy, which differs from *D. wrightii* for the type of indument (Verloove 2008).

L. Gubellini, N. Hofmann

Dicliptera squarrosa Nees (Acanthaceae)

+ (CAS) **ITALIA** (**TOS**): Seravezza (Lucca), fraz. Querceta, vicino all'ingresso della stazione ferroviaria "Forte dei Marmi-Seravezza-Querceta", Via Ragazzi del '99 (WGS84: 43.978158N, 10.198074E), margine stradale, 18 m, 23 October 2018, *M. Mugnai*, *L. Lazzaro*, *G. Ferretti* (FI). – Casual alien species new for the flora of Italy (Toscana).

Dicliptera squarrosa is an ornamental plant native to South America, which presents several forms, separated mostly geographically and hardly forming discrete units (Wasshausen and Wood 2004). This species is currently widely available for sale worldwide and is largely used also in Italy. We found one flowering individual clearly escaped from cultivation close to the Querceta railway station. According to some authors (J. Wood, pers. commun.), the forms cultivated in Europe should be referred to *Dicliptera suberecta* (André) Bremek., currently considered as a synonym of *D. squarrosa* (Zuloaga et al. 2008). Nevertheless, further studies are needed to solve this issue and we prefer to provisionally maintain this record under *D. squarrosa*.

M. Mugnai, L. Lazzaro, F. Pasquini, G. Ferretti

***Eragrostis mexicana* (Hornem.) Link subsp. *virescens* (J.Presl) S.D.Koch & Sánchez Vega (Poaceae)**

+ (CAS) **MAR**: Gradara (Pesaro e Urbino), presso il cimitero comunale (WGS84: 43.942494N, 12.769445E), incolto erboso (oliveto abbandonato), ca. 330 m, 16 November 2018, *L. Gubellini*, *N. Hofmann* (FI, PESA). – Casual alien subspecies new for the flora of Marche.

Eragrostis mexicana subsp. *virescens* is an alien annual grass from South America recorded in Europe since 1927, and in Italy since 1975 (Martini and Scholz 1998). Until now, it was reported in Italy as naturalized alien in northern regions (Piemonte, Liguria, Lombardia, Veneto, Trentino-Alto Adige, Friuli Venezia Giulia, Emilia-Romagna) and Calabria, and as casual alien for Valle d'Aosta, Lazio, Campania, and Puglia (Galasso et al. 2018a). A large number of individuals were detected by S. Montanari (pers. commun.) in an uncultivated grassy field, and the abundance of specimens suggests a naturalization of the species, which can be confirmed by monitoring the site.

L. Gubellini, N. Hofmann

***Erigeron karvinskianus* DC. (Asteraceae)**

+ (NAT) **MAR**: Ancona (Ancona), porto antico (WGS84: 43.623791N, 13.509335E), mura in pietra del porto antico e degli scavi adiacenti, 10 m, 28 August 2018, *G. Mei* (*Herb. G. Mei*); Sirolo (Ancona), piazzetta del belvedere e centro storico (Piazzale Marino) (WGS84: 43.522444N, 13.621030E), mura in pietra e bordure degli spazi verdi, 110 m, 12 November 2018, *G. Mei* (FI, ANC, *Herb. G. Mei*); Piobbico (Pesaro e Urbino), vicino al ponte sul Torrente Biscubio (WGS84: 43.352610N, 12.303703E), mura in pietra, ca. 330 m, 21 November 2018, *L. Gubellini*, *N. Hofmann* (FI, PESA). – Naturalized alien species new for the flora of Marche.

Erigeron karvinskianus is an American perennial species native to Mexico and Guatemala which occurs all over western Europe, probably escaped from floriculture. To date, it is present in almost all the Italian territory, with the exception of Valle d'Aosta, Molise, Basilicata, and Sardegna (Galasso et al. 2018a). In all the recorded localities, this species was also observed near road edges and in unmanaged flowerbeds, mainly colonizing the gaps in walls, where it seems to be more competitive than other species, such as *Cymbalaria muralis* G.Gaertn., B.Mey. & Scherb. subsp. *muralis*, *Linaria vulgaris* Mill. subsp. *vulgaris*, and *Parietaria judaica* L. In all the sites, this species is in expansion, in particular in Piobbico, a site monitored since 2016.

L. Gubellini, N. Hofmann, G. Mei

+ (INV) **CAM**: Castellammare di Stabia (Napoli), tra il Castello Angioino e Quisisana (WGS84: 40.687474N, 14.481252E), muro in pietra calcarea, 135 m, 24 April 2013, *A. Stinca* (PORUN-Herb. Stinca); *ibidem* (WGS84: 40.687493N, 14.481536E), muro in pietra calcarea, 130 m, 29 September 2018, *A. Stinca* (PORUN-Herb. Stinca); Ravello (Salerno), Villa Rufolo (WGS84: 40.648479N, 14.613078E), muro in pietra cal-

carea, 353 m, 10 March 2014, leg. *A. Stinca*, *M. Ravo*, det. *A. Stinca* (PORUN-Herb. Stinca). – Status change from naturalized to invasive alien for the flora of Campania.

Erigeron karvinskianus was reported as naturalized for Campania by Galasso et al. (2018a). However, we found this alien plant, in dense and extensive populations, mostly on walls of limestone and tuff blocks of several sites in the Sorrento peninsula. In these environments, it easily spreads by abundant seed production and competes strongly with endemic species, such as *Campanula fragilis* Cirillo subsp. *fragilis*. Therefore, this species should be considered invasive in Campania.

A. Stinca, A. Esposito

***Gamochaeta pensylvanica* (Willd.) Cabrera (Asteraceae)**

+ (NAT) **CAL**: Reggio Calabria (Reggio Calabria), Catona (WGS84: 38.185074N, 15.637955E), marciapiedi, 2 m, 12 June 2019, leg. *V.L.A. Laface*, det. *V.L.A. Laface*, *C.M. Musarella*, *G. Spampinato* (FI, REGGIO); Villa San Giovanni (Reggio Calabria), Viale U. Zanotti Bianco (WGS84: 38.214703N, 15.637015E), marciapiedi, 8 m, 26 June 2019, *V.L.A. Laface* (REGGIO); Reggio Calabria (Reggio Calabria), Cittadella Universitaria (WGS84: 38.121004N, 15.662473E), aiuola, 80 m, 26 June 2019, *V.L.A. Laface*, *C.M. Musarella*, *G. Spampinato* (REGGIO); Campo Calabro (Reggio Calabria), Musalà (WGS84: 38.214607N, 15.672014E), bordo strada, 154 m, 30 June 2019, *V.L.A. Laface* (REGGIO); Reggio Calabria (Reggio Calabria), Gallico Marina (WGS84: 38.169410N, 15.651119E), marciapiedi, 16 m, 10 July 2019, *V.L.A. Laface* (REGGIO). – Naturalized alien species new for the flora of Calabria.

Gamochaeta pensylvanica is native to North America. In Italy, its first record by Moraldo and La Valva (1989) for Campania, was erroneously attributed by these authors to *G. purpurea* (L.) Cabrera (Soldano 2000) and then recorded in the same region by Stinca et al. (2016, 2018). The origin of the introduction of this species in Italy is uncertain. Probably, *G. pensylvanica* arrived in Italy through the importation of potting soil used in plant nurseries. Currently, according to Galasso et al. (2018a), *G. pensylvanica* is a naturalized alien species in Campania, Piemonte, Lombardia, Emilia-Romagna, and Sicilia, whereas it is casual in Toscana, Lazio, and Puglia. In Calabria, this species was observed for the first time in 2008 in locality Catona (Reggio Calabria).

C.M. Musarella, V.L.A. Laface, G. Spampinato

***Gazania linearis* (Thunb.) Druce (Asteraceae)**

+ (CAS) **CAL**: San Calogero (Vibo Valentia), Via L. Pirandello (WGS84: 38.576041N, 16.023808E), bordo strada, 256 m, 9 June 2019, *C.M. Musarella* (FI, REGGIO). – Casual alien species new for the flora of Calabria.

Gazania linearis has its native range in South Africa and Lesotho. Since it has been cultivated as an ornamental plant since the 19th century, it has become an invasive plant in several regions of the world (Hassler 2019). In Italy, according to Galasso et

al. (2018a), this species is a casual alien to Toscana, Molise, and Puglia, whereas it is doubtfully recorded for Sardegna.

C.M. Musarella, V.L.A. Laface, G. Spampinato

***Impatiens parviflora* DC. (Balsaminaceae)**

+ (INV) **TOS**: Abetone Cutigliano (Pistoia), fra Pianosinatico e Cecchetto in loc. Serrabosco, versante SE di Poggio del Romito (WGS84: 44.125410N, 10.717628E), bosco misto di conifere di impianto con residui di faggeta, 900 m, 21 July 2019, *F. Roma-Marzio*, *M. D'Antraccoli*, *L. Peruzzi* (PI No. 025544). – Status change from naturalized to invasive alien for the flora of Toscana.

Impatiens parviflora is native to central and eastern Asia and represents one of the most widespread aliens in central Europe, being the only alien plant widespread in European forests (Godefroid and Koedam 2010; Hejda 2012). In Italy, this species is reported as naturalized in Friuli Venezia Giulia, Emilia-Romagna, Liguria, Toscana, and Lazio, and as invasive in Valle d'Aosta, Piemonte, Lombardia, Trentino-Alto Adige, and Veneto (Galasso et al. 2018a). During a field survey conducted in the Tuscan Apennines, we noticed a large population of this species. The plants are particularly dense, totally covering the herbaceous layer in shady sites and showing a preference for dry, acidic and nutrient-poor soil conditions, as also highlighted by Godefroid and Koedam (2010). Accordingly, we retain the status of invasive species as more appropriate for *I. parviflora* in Toscana.

F. Roma-Marzio, M. D'Antraccoli, L. Peruzzi

***Kolkwitzia amabilis* Graebn. (Linnaeaceae)**

+ (CAS) **PIE**: Avigliana (Torino), piazzola di sosta lungo la via che porta alla Sacra di San Michele (WGS84: 45.065342N, 7.375007E), margine stradale, ca. 400 m, 8 May 2019, *M. Arnoul, M. Lonati* (FI, TO). – Casual alien species new for the flora of Piemonte.

This ornamental species is native to China. It is reported in Italy as casual only for Lombardia (Galasso et al. 2018a).

M. Arnoul, M. Lonati

***Leucaena leucocephala* (Lam.) de Wit subsp. *glabrata* (Rose) Zárate (Fabaceae)**

+ (CAS) **SAR**: Sestu (Cagliari), loc. Su Moriscau, presso la strada provinciale (WGS84: 39.165891N; 9.044471E), aree incolte, 26 m, 11 July 2019, *A. Lallai* (FI, CAG); Monserrato (Cagliari) (WGS84: 39.150639N, 9.084440E), bordo strada, 15 m, 13 July 2019, *L. Podda* (CAG). – Casual alien subspecies new for the flora of Sardegna.

This subspecies is native to central America and southern Mexico, and it was introduced in many countries for several purposes, sometimes becoming invasive (Hughes 1998a, 1998b). In Italy, it has been reported as naturalized in Sicilia (Raimondo and Domina 2007; Pignatti et al. 2017; Galasso et al. 2018a). In Sardegna, it has been ob-

served since 2006 in the industrial area of Sestu, where some plants are growing not far from the cultivated parental plants. Some saplings and young trees have also been observed in the surroundings of Monserrato, in fallow land and roadsides close to Via C. Cabras.

A. Lallai, L. Podda, G. Bacchetta

***Ludwigia hexapetala* (Hook. & Arn.) Zardini, H.Y.Gu & P.H.Raven (Onagraceae)**

+ (NAT) **LAZ**: Bracciano (Roma), fraz. Vigna di Valle, Museo Storico dell'Aeronautica Militare, sul Lago di Bracciano (WGS84: 42.085342N, 12.218902E), sulla spiaggia e sulla riva del lago, 162 m, 12 June 2019, *S. Buono* (FI). – Naturalized alien species new for the flora of Lazio.

Ludwigia hexapetala is a herbaceous perennial plant native to central and South America; its habitat includes lakeshores, ponds, ditches, and streams. The large tolerance of this species to the variations of hydrological and climatic conditions, as well as the strong ability to colonize both beaches and swamps, make it a noxious invader of aquatic ecosystems in North America and in Europe, where it is reported (as included in *L. grandiflora* (Michx.) Greuter & Burdet) in the list of invasive alien species of Union concern (Regulation (EU) n. 1143/2014). It was recorded for Italy by Galasso (2007), based on specimens collected in Lombardia and Veneto and, later, as invasive for Emilia-Romagna (Alessandrini et al. 2017). This species is already established around the coasts of Bracciano Lake, where large populations with hundreds of plants regularly develop flowers and fruits. Nowadays, it occurs with dense populations on about 2 km of the coast near Vigna di Valle, together with other aliens, such as *Amorpha fruticosa* L., *Datura wrightii* Regel, *Eclipta prostrata* (L.) L., *Oenothera glazioviana* Micheli, *Physalis peruviana* L., *Salvia hispanica* L. (see also Galasso et al. 2018b, 2018c, 2019). Moreover, it is widespread near Trevignano Romano (Roma), loc. Pantane, where it was wrongly reported as *L. peploides* (Kunth) P.H.Raven subsp. *montevidensis* (Spreng.) P.H.Raven (Azzella and Iberite 2010). Some individuals can be observed on the east coast of the lake (Lungolago di Polline).

S. Buono, M.M. Azzella, S. Magrini

***Medicago* ×*varia* Martyn (Fabaceae)**

+ (CAS) **TOS**: Greve in Chianti (Firenze), Monte San Michele, Valico del Morellino (WGS84: 43.550176N, 11.398473E), lungo strada, ca. 10 individui, 748 m, 27 June 2018, *T. Fiaschi* (FI). – Casual alien nothospecies new for the flora of Toscana.

This nothospecies (*Medicago falcata* L. subsp. *falcata* × *M. sativa* L.) is likely much more widespread in Italy than currently recorded (Galasso et al. 2018a).

G. Bonari, T. Fiaschi, C. Angiolini

***Muscari armeniacum* Leichtlin ex Baker (Asparagaceae)**

+ (CAS) **PIE**: Verbania (Verbano Cusio Ossola), fraz. Pallanza, Via Prossano, a lato dell'ingresso dei Giardini Botanici di Villa Taranto (WGS84: 45.926149N,

8.565000E), muro di cinta, crepa nel cemento, 206 m, N, 22 April 2019, *N.M.G. Ardenghi*, *S. Mossini* (FI). – Casual alien species new for the flora of Piemonte.

Muscari armeniacum, usually grown for ornamental purposes, is known as a casual alien in different regions of northern and central Italy, except Piemonte (Galasso et al. 2018a). A single individual was found within the crack of a wall near the entrance of the Botanical Gardens of Villa Taranto, where this species is widely cultivated in flowerbeds.

N.M.G. Ardenghi, S. Mossini

Nigella sativa L. (Ranunculaceae)

+ (CAS) **PUG**: Bari (Bari), Lungomare N. Sauro (WGS84: 41.122055N, 16.878997E), fessure di marciapiede, 1 m, 22 May 2019, leg. *G. Picella*, det. *L. Forte*, *R.P. Wagensommer* (BI No. 42139); *ibidem*, 17 June 2019, leg. *L. Forte*, det. *L. Forte*, *R.P. Wagensommer* (FI, BI No. 42140). – Casual alien species new for the flora of Puglia.

Nigella sativa grows in many countries of the temperate regions, where it is cultivated for its aromatic seeds (Zohary 1983). In Italy, it was already cultivated in Ancient Rome (Arrigoni and Viegi 2011), and it is currently reported as a casual alien in Sardegna, extinct in Piemonte, and not recently recorded for Friuli Venezia Giulia and Toscana (Galasso et al. 2018a). In the latter region, Arcangeli (1882) already indicated its occurrence in Casentino as doubtful. No recent information about cultivation of this species in Puglia is available.

L. Forte, R.P. Wagensommer, G. Picella

Oenothera speciosa Nutt. (Onagraceae)

+ (NAT) **MAR**: Fano (Pesaro e Urbino), loc. Rosciano (WGS84: 43.822978N, 12.995544E), margini stradali e campi, ca. 28 m, 2 June 2017, *L. Gubellini* (FI, PESA). – Naturalized alien species confirmed for the flora of Marche.

Oenothera speciosa is a showy perennial alien introduced as ornamental, native to prairies in the United States of America (Missouri and Nebraska) and northern Mexico (Wager et al. 2007; Keener et al. 2019). In Italy, this species is reported as casual alien for Lombardia, Veneto, Toscana, and as naturalized for Emilia-Romagna (Galasso et al. 2018a). For Marche, the occurrence of a *Oenothera* with pink flowers near Senigallia was reported by G. Mazzufferi (pers. commun.). The same data was later verified and recorded by Montanari and Marconi (2010), but no precise locality information was provided. In Rosciano, several specimens have been observed for some years along roadsides and uncultivated areas, where they are slowly spreading.

L. Gubellini, N. Hofmann

+ (CAS) **SIC**: Augusta (Siracusa), centro urbano, villetta comunale tra Via A. Gramsci e Via Papa Giovanni XXIII (WGS84: 37.247270N, 15.221336E), 25 May 2019, leg. *R. Romano*, det. *N.M.G. Ardenghi* (FI). – Casual alien species new for the flora of Sicilia.

Many individuals grow in an abandoned urban garden, probably introduced a few years ago for ornamental purposes in a small flowerbed. Currently, *O. speciosa* displays an 80% cover of the flowerbed and is expanding in the surrounding areas.

R. Romano, O. Caldarella, A. La Rosa, F. Luchino, N.M.G. Ardenghi

Opuntia scheeri F.A.C.Weber (Cactaceae)

+ (CAS) **UMB**: Castiglione del Lago (Perugia), loc. Badiaccia, vicino alla sponda del Lago Trasimeno, lungo la strada SR71, presso l'ingresso di un'abitazione privata (WGS84: 43.168985N, 12.014299E), coltivata e spontaneizzata lungo un fosso, 261 m, 9 October 2018, *M. Mugnai*, *S. Di Natale*, *G. Ferretti* (FI). – Casual alien species new for the flora of Umbria.
+ (CAS) **TOS**: Sesto Fiorentino (Firenze), fraz. Montorsoli, nei pressi della ex stazione ferroviaria lungo la ferrovia Faentina (WGS84: 43.836202N, 11.284043E), pianta spontaneizzata sulla scarpata al margine stradale, 265 m, 7 February 2019, *M. Mugnai* (FI). – Casual alien species new for the flora of Toscana.

Opuntia scheeri is a species native to Mexico, often cultivated as an ornamental plant. It was recorded for the first time in Italy in 1994 (Guiggi 2008), and currently occurs in several regions of northern Italy (Piemonte, Lombardia, Trentino-Alto Adige, Veneto, Emilia-Romagna: Galasso et al. 2018a). Both the records reported here refer to individuals growing close to inhabited areas and derived most likely from cultivated plants. The record from Umbria refers to several well-established plants, probably originated by vegetative means from individuals cultivated nearby. The Tuscan occurrence, instead, consists of a single established individual.

M. Mugnai, E. Corti, S. Di Natale

Paulownia tomentosa (Thunb.) Steud. (Paulowniaceae)

+ (CAS) **TOS**: Vaglia (Firenze), fraz. Fontebuona, ex stazione ferroviaria lungo la ferrovia Faentina (WGS84: 43.880886N, 11.289335E), numerose piante spontaneizzate nei pressi dei marciapiedi e degli edifici della stazione, 332 m, 8 November 2018, *M. Mugnai*, *A. Misuri*, *G. Ferretti* (FI). – Casual alien species new for the flora of Toscana.

Paulownia tomentosa is an ornamental plant native to China and introduced to Europe. It is usually cultivated in parks and gardens, but it is also used for timber production thanks to its fast growth and high-quality wood. The size of plantations in Italy has been increasing rapidly since 1989 (Mezzalira and Colonna 2002). This species occasionally escapes cultivation and becomes invasive, growing rapidly in disturbed areas. It is considered as invasive in the USA, and a potentially invasive species in Europe and South America, where it has been introduced (CABI 2019). We observed an abundant population at the Fontebuona railway station, close to a large cultivated plant. The population consists of numerous individuals of various ages, deriving from both seeds and root suckers. Recently (May 8th, 2019) this species was detected in another site, on the right bank of the Arno River in loc. Riscaggio (Reggello, Firenze, WGS84: 43.7249776N, 11.4662411E).

A. Misuri, L. Pinzani, G. Ferretti

***Petroselinum crispum* (Mill.) Fuss (Apiaceae)**

+ (NAT) **ITALIA** (**SAR**). Status change from casual to naturalized alien for the flora of Italy (Sardegna).

In Italy, *Petroselinum crispum* is reported for most of the regions (Galasso et al. 2018a). Although an agronomic study on populations naturalized in Trentino-Alto Adige was published recently (Fusani et al. 2016), it is considered as casual alien at national level. We detected numerous plants inhabiting steep and shady calcarenitic cliffs at Capo Sant'Elia (Cagliari, Sardegna). This population displays a well-structured partition in age classes, with seedlings, juveniles, and fruiting individuals that suggest the establishment of a naturalized population. Interestingly, the presence in this area of the phyto-toponym "su perdusemini", clearly referring to parsley, and used at least from the 18th century to name a tower probably built during the 16th century, suggests that naturalized populations may be present in this area since a long time. However, *P. crispum* was not previously recorded in the accurate flora of Capo Sant'Elia compiled by Martinoli (1950). In this context, it must be pointed out that the origin of this widely cultivated plant has not yet been identified with certainty, though it possibly originates in the eastern or central Mediterranean region (Agyare et al. 2017; Pignatti et al. 2018). It is noteworthy that Linnaeus (1753) stated its wild habitat to be Sardegna, close to springs.

M.C. Fogu, M. Marignani, L. Rosati

***Phyllostachys viridiglaucescens* (Carrière) Rivière & C.Rivière (Poaceae)**

– **VDA**. – Alien species to be excluded from the flora of Valle d'Aosta.

Phyllostachys viridiglaucescens in Valle d'Aosta was recorded for two localities (Mainetti and Banfi 2018). Surveys in 2018 [Champdepraz (Aosta), terrazzamenti abbandonati a ca. 300 m dalla fraz. Chef-Lieu (WGS84: 45.68873546N, 7.65795915E), terrazzamenti abbandonati, ca. 540 m, 7 October 2018, *A. Mainetti, S. Ravetto Enri, V. Mezzasalma* (FI); Arnad (Aosta), boscaglia a lato della strada SS26 sul confine con il comune di Hône (WGS84: 45.624517N, 7.736778E), boscaglia ripariale, ca. 350 m, 7 October 2018, *A. Mainetti, S. Ravetto Enri, V. Mezzasalma* (FI)] revealed short oblique internodes at the base of the culms for both the localities. This is a distinctive feature of *P. aurea* Carrière ex Rivière & C.Rivière (Tison and de Foucault 2014), a species already reported from Valle d'Aosta (Galasso et al. 2018a). Furthermore, the identity of this plant was confirmed by a DNA fingerprinting (RAPD) analysis performed by FEM2-Environment Company (spin-off of the University of Milano-Bicocca) within the BambApp Project (BambApp 2019) (Dipartimento di Scienze Agrarie, Forestali e Alimentari, Università di Torino), using samples from a private botanical collection (T. Froese: Cravanzana, Cuneo, Italy) verified by us as reference base. Consequently, *P. viridiglaucescens* should be excluded from the flora of Valle d'Aosta.

A. Mainetti, S. Ravetto Enri, V. Mezzasalma

Phyllostachys viridis (R.A.Young) McClure (Poaceae)

+ (NAT) **PIE**: Arona (Novara), fraz. Montrigiasco, zona Cascina Motto (WGS84: 45.77122N, 8.51728E), bosco a *Robinia pseudoacacia* dominante, ca. 425 m, 15 January 2018, *M. Pittarello*, *A. Mainetti*, *F. De Mattia* (FI). – Status change from casual to naturalized alien for the flora of Italy; naturalized alien species new for the flora of Piemonte.
+ (NAT) **VDA**: Antey-Saint-André (Aosta), loc. Filey, nei pressi della riva orografica sinistra del Torrente Marmore (WGS84: 45.81154804N, 7.58866366E), prato da sfalcio, ca. 1030 m, 21 July 2018, *M. Lonati*, *S. Pirani*, *J. Frigerio* (FI). – Naturalized alien species new for the flora of Valle d'Aosta.

According to Galasso et al. (2018a), *Phyllostachys viridis* was previously reported in Italy only for Lombardia. Its identity was confirmed by a DNA fingerprinting (RAPD) analysis performed by FEM2-Environment Company (spin-off of the University of Milano-Bicocca) within the BambApp Project (BambApp 2019), using samples from a private botanical collection (T. Froese: Cravanzana, Cuneo, Italy) verified by us as reference base. These populations originated from agamic propagation of nearby cultivated plants.

M. Pittarello, A. Mainetti, F. De Mattia, M. Lonati, S. Pirani, J. Frigerio

Physalis angulata L. (Solanaceae)

+ (CAS) **UMB**: Otricoli (Terni), area archeologica Utriculum, riva idrografica sinistra del Fiume Tevere (WSG84: 42.408889N, 12.458889E), coltivo, 42 m, 30 July 2015, *E. Scarici*, *M. Scarici* (FI). – Casual alien species new for the flora of Umbria.

Physalis angulata is a tropical American species that it is occasionaly cultivated for its edible fruits (Hawkes 1972). It is reported in Italy only in Lombardia, Veneto, and Lazio (Galasso et al. 2018a). Many individuals grow in cultivated areas along the river.

E. Scarici, M. Scarici

Pseudosasa japonica (Siebold & Zucc. ex Steud.) Makino ex Nakai (Poaceae)

+ (NAT) **VDA**: Châtillon (Aosta), traversa di Strada Chemin de Barat che porta alla stazione di servizio autostradale (direzione Aosta) (WGS84: 45.747689N, 7.618339E), prato da sfalcio, ca. 490 m, 13 October 2018, *S. Ravetto Enri*, *M. Lonati*, *L. Guzzetti* (FI). – Naturalized alien species new for the flora of Valle d'Aosta.

In Italy, *Pseudosasa japonica* was reported for all northern regions with the exception of Liguria and Valle d'Aosta (Galasso et al. 2018a). Single branches per node and palmfont-like leaves clearly permitted to identify the species (Li et al. 2006; Tison and de Foucault 2014). In addition, the identity was confirmed by a DNA fingerprinting (RAPD) analysis conducted by FEM2-Environment Company (spin-off of the University of Milano-Bicocca) within the BambApp Project (BambApp 2019), using samples from a private botanical collection (T. Froese: Cravanzana, Cuneo, Italy) verified by us as reference base. The recorded population originated from agamic propagation of nearby cultivated plants.

S. Ravetto Enri, M. Lonati, L. Guzzetti

Quercus rubra L. (Fagaceae)

+ (CAS) **SAR**: Villagrande Strisaili (Nuoro), Monte Idolo (WGS84: 39.940833N, 9.488056E), graniti, 881 m, 2 June 2019, *G. Bacchetta* (FI, CAG). – Casual alien species new for the flora of Sardegna.

The red oak is an American taxon, which was imported in Europe starting from the 17th century (Magni Diaz 2004), and in Italy from 1803 (Maniero 2015). In Sardegna, it was introduced in reforestations and for ornamental purposes (Veri and Bruno 1974; Arrigoni 2006). In recent years, numerous trees and saplings were found on the eastern side of the Gennargentu Massif (Monte Idolo), all growing close to reforestations with red oak and other alien trees.

G. Bacchetta, G. Calvia, L. Podda

Reynoutria bohemica Chrtek & Chrtková (Polygonaceae)

+ (NAT) **MAR**: Urbino (Pesaro e Urbino), lungo la strada SS73bis (WGS84: 43.730503N, 12.635836E), scarpata stradale, ca. 410 m, 16 November 2018, *N. Hofmann* (FI, PESA). – Naturalized alien species new for the flora of Marche.

Reynoutria bohemica is of hybrid origin between the alien species *R. japonica* Houtt. and *R. sachalinensis* (F.Schmidt) Nakai, and it has been recognized and described only at the end of the last century in the Czech Republic (Chrtek and Chrtková 1983). Like other congener species, *R. bohemica* colonizes ruderal environments, roadsides and waterways, and forms dense stands that shade and crowd out all other plants, thereby reducing the biodiversity of invaded plant communities and damaging habitats beyond repair (Padula et al. 2008). In Italy, it has been reported, so far, for Valle d'Aosta, Piemonte, Lombardia, Veneto, and Toscana as invasive alien, for Friuli Venezia Giulia and Emilia-Romagna as naturalized alien, and for Trentino-Alto Adige, Liguria as casual alien (Galasso et al. 2018a). In the Urbino site, which represents the first record for Marche, a large number of individuals has been monitored for several years, and a considerable increase of the population was observed. For this reason, containment measures should be taken.

L. Gubellini, N. Hofmann

Roldana petasitis (Sims) H.Rob. & Brettell (Asteraceae)

+ (CAS) **SIC**: Librizzi (Messina), Via A. Cullurafi (WGS84: 38.096521N, 14.957978E), su scarpata stradale alberata con suolo profondo, 8 April 2019, *C.D. Rifici* (FI). – Casual alien species confirmed for the flora of Sicilia.

Roldana petasitis is native to central America (Jeffrey 1986). According to Galasso et al. (2018a), this species is naturalized in Liguria, while in Lazio, Puglia, and Basilicata it is considered as a casual alien. Although Fiori (1927) reported this taxon as growing wild in Sicilia, Giardina et al. (2007) excluded it from this region. A few individuals of different age were found in Librizzi, growing along the roadside with other

nitrophilous species typical of urban areas. The population, monitored since 2013, is particularly resilient, despite the continuous cuts made during ordinary maintenance of public flowerbeds. In Sicilia, this species occurs also in Siracusa, at Latomia dei Cappuccini, in a limestone quarry (R. Genovese, pers. commun.).

C.D. Rifici, A. La Rosa, O. Caldarella, F. Luchino

***Saccharum biflorum* Forssk. (Poaceae)**

+ (NAT) **PUG**: Melendugno (Lecce) lungo la Circonvallazione di Melendugno (WGS84: 40.270194N, 18.343408E), bordo strada, 35 m, 22 August 2019, *G. Laghetti*, *G. Maruca*, *C.M. Musarella* (REGGIO). – Naturalized alien species confirmed for the flora of Puglia.

For Italy, *Saccharum biflorum* was known, until now, only in Sicilia and Sardegna, whereas it was not, until recently, recorded in Puglia (Galasso et al. 2018a). A population was found also in Puglia, between a road and an abandoned field, covering a surface of about 20 m^2. Due to its extension and to the number of the flowering stems, we can consider this species as naturalized in this locality.

C.M. Musarella, G. Maruca, G. Laghetti

***Sedum palmeri* S.Watson (Crassulaceae)**

+ (CAS) **PIE**: Verbania (Verbano Cusio Ossola), fraz. Pallanza, Viale G. Azari (WGS84: 45.928311N, 8.552684E), marciapiede, 214 m, 22 April 2019, *N.M.G. Ardenghi*, *S. Mossini* (FI). – Casual alien species new for the flora of Piemonte.

Sedum palmeri, commonly cultivated as an ornamental pot plant, has been recorded from many northern Italian regions, except Piemonte (Galasso et al. 2018a). Some individuals were discovered growing within the cracks of a sidewalk. This species may be more widespread across the region, especially in urban areas.

N.M.G. Ardenghi, S. Mossini

+ (CAS) **TOS**: Figline e Incisa Valdarno (Firenze), loc. C. Torrione (WGS84: 43.6586857N, 11.4246546E), interno cipresseta, 310 m, 24 February 2019, *L. Pinzani* (FI). – Casual alien species new for the flora of Toscana.

In Italy, *Sedum palmeri* is recorded from Lombardia, Veneto, Friuli Venezia Giulia, Emilia-Romagna, Liguria, Lazio, Campania, and Sardegna (Galasso et al. 2018a). Various groups of individuals grow within a cypress wood. The main one is represented by more than 100 individuals.

L. Pinzani

***Semiarundinaria fastuosa* (Lat.-Marl. ex Mitford) Makino (Poaceae)**

+ (NAT) **ITALIA** (**PIE**): Borgo San Dalmazzo (Cuneo), Via Mangiacane (WGS84: 44.34109541N, 7.50195817E), canale di irrigazione e margine di seminativo, ca.

620 m, 1 February 2018, *M. Pascale*, *G. Nota*, *V. Mezzasalma* (FI). – Naturalized alien species new for the flora of Italy (Piemonte).

Semiarundinaria fastuosa is a bamboo native to Japan (south-western Honshu). The recorded population originated from agamic propagation from a private garden and colonized a nearby canal bank. Several branches per node, partially deciduous culm sheaths and minute auricles allowed us to identify this species (Li et al. 2006; Tison and de Foucault 2014). The identification was confirmed by DNA fingerprinting (RAPD) analysis performed by FEM2-Environment Company (spin-off of the University of Milano-Bicocca) within the BambApp Project (BambApp 2019), using samples from a private botanical collection (T. Froese: Cravanzana, Cuneo, Italy) verified by us as reference base.

M. Pascale, G. Nota, V. Mezzasalma

Senecio angulatus L.f. (Asteraceae)

+ (CAS) **ABR**: San Vito Chietino (Chieti), loc. Marina, muro di contenimento coperto da vegetazione presso la strada SS16 Adriatica (WGS84: 42.305208N, 14.450116E), ca. 15 m, SW, 18 May 2019, *N. Olivieri* (FI). – Casual alien species new for the flora of Abruzzo.

Senecio angulatus is a succulent climbing plant native to South Africa, introduced for ornamental purposes in southern Europe, Macaronesia, northern Africa, California, Chile, Australia, and New Zealand. Currently, it is naturalized in Albania (Barina et al. 2011), Croatia (Milović et al. 2010), Iberian peninsula (Romero Buján 2007; Pyke 2008), and Chile (Ugarte et al. 2011) and is considered one of the most invasive species in the western Mediterranean area (Brundu et al. 1999), Mediterranean France (Brunel and Tison 2005), Australia (Ross and Walsh 2003; Randall 2007), and New Zealand (Bergin 2006). This species was introduced in Italy in 1875 (Maniero 2015). It is known as a casual alien in Lazio and Calabria, while it is naturalized in Puglia, Campania, Basilicata, Sicilia, and invasive in Liguria, Toscana, and Sardegna (Galasso et al. 2018a). In San Vito Chietino, this species grows on a brick retaining wall, located below the site of the Adriatic State Road, in a sunny and sheltered position, close to the Adriatic Sea. Here the plant is established along with *Arundo plinii* Turra, *Ficus carica* L., and *Rubus ulmifolius* Schott.

N. Olivieri

Senecio inaequidens DC. (Asteraceae)

+ (INV) **TOS**. – Status change from naturalized to invasive alien for the flora of Toscana.

Senecio inaequidens is native to South Africa. It was recorded in Europe for the first time in the mid-twentieth century and observed in Italy in 1947 (Carrara Pantano and Tosco 1959; Anzalone 1976). It was reported as present throughout central and northern Italy and has been rapidly expanding since the beginning of the 1980s (Pignatti 1982). Now it is widespread in all Italian regions and often considered invasive (Galasso et al.

2018a). Our recent field investigations revealed the presence of this species in all Tuscan provinces, confirming many previous observations and adding several new occurrences (Peruzzi et al. 2019). Consequently, this species is abundant and well distributed in anthropized sites of Toscana, where it is spreading notwithstanding the control actions often undertaken. Moreover, this species has been observed in some natural sites. Accordingly, we regard the status of invasive alien as the most appropriate.

A. Misuri, G. Ferretti, M. Mugnai

***Sisyrinchium rosulatum* E.P.Bicknell (Iridaceae)**

+ (CAS) **SAR**: Olbia (Sassari), Parco F. Noce, presso il canale di Via L. Galvani (WGS84: 40.554511N, 9.295523E), prati e aiuole, 1–2 m, 25 June 2017, *G. Calvia* (FI); *ibidem*, Parco F. Noce, lato Via G. D'Annunzio, ai lati della pista (WGS84: 40.554352N, 9.300366E), aiuole e prati inglesi, 2 m, 25 June 2017, *G. Calvia* (*Herb. G. Calvia*). – Casual alien species new for the flora of Sardegna.

Sisyrinchium rosulatum is a species native to North America, introduced in Europe and other continents, and now naturalized in several countries (Nicolella and Ardenghi 2013). In Italy, this species has been reported as casual alien in Lazio (Nicolella and Ardenghi 2013; Galasso et al. 2018a). In Sardegna, it has been observed starting to 2015 in the town of Olbia, where it grows in the Fausto Noce community park and neighboring areas, above all in lawns but also in flowerbeds and along paths. It probably arrived there thanks to seed dispersed in lawns.

G. Calvia

***Solanum bonariense* L. (Solanaceae)**

+ (CAS) **LIG**: Genova (Genova), lungo Via Apparizione, nel tratto pedonale (WGS84: 44.40443N, 8.98889E), bordo strada, 42 m, 20 April 2019, *A. Di Turi, C. Aristarchi* (FI, GE, GDOR). – Casual alien species new for the flora of Liguria.

Solanum bonariense is a perennial shrub native to Uruguay, northern Argentina, and southern Brazil where it is widespread in pastures. Introduced in Europe as an ornamental, it is nowadays recorded in Italy as a casual species for Lombardia, Lazio, Campania, and as naturalized for Toscana and Sicilia (Galasso et al. 2018a). A well-developed specimen, growing together with *Parietaria judaica* L., has been recorded in a pedestrian street of Genova among houses surrounded by orchards and gardens.

A. Di Turi, C. Aristarchi

***Solanum laciniatum* Aiton (Solanaceae)**

+ (NAT) **ITALIA** (**TOS**): Monte Argentario (Grosseto), lungo la strada sterrata Via Panoramica, sopra Cala dell'Acqua Dolce (WGS84: 42.374541N, 11.185636E), macchia, 70 m, 22 June 2019, *F. Roma-Marzio, P. Liguori* (FI, *Herb. F. Roma-Marzio*). – Naturalized alien species confirmed for the flora of Italy and new for the flora of Toscana.

Solanum laciniatum is a species native to New Zealand and Australia from south-eastern Australia, Victoria, and Tasmania (Simon 1981). This species belongs to *Solanum* subg. *Archaesolanum* Bitter ex Marzell, composed of eight species occurring only in the SW-Pacific region (Poczai et al. 2011). In the Euro+Med area, *S. laciniatum* is recorded in Morocco, France, Spain, Israel, and Tunisia (Valdés 2012), whereas in Italy it is doubtfully occurring based on a record for Puglia (Beccarisi et al. 2015; Galasso et al. 2018a). This species is similar to *S. aviculare* G.Forst, that mainly differs from *S. laciniatum* in the shape of petals (notched in *S. laciniatum* and acute in *S. aviculare*), and in the colour of mature fruits (orange-yellow in *S. laciniatum* and orange-red to scarlet in *S. aviculare*). About six big tufts, probably originated from cultivated plants at a nearby hotel, were counted mixed with native species typical of the Mediterranean scrub. Furthermore, in the same area plants are present since 2006, as highlighted by some photos published on the Portal to the Flora of Italy (http://dryades.units.it/floritaly/index.php?procedure=taxon_page&tipo=all&id=11471).

F. Roma-Marzio

Sporobolus indicus (L.) R.Br. (Poaceae)

+ (CAS) **MAR**: Piobbico (Pesaro e Urbino), alla confluenza tra il Torrente Biscubio e il Fiume Candigliano (WGS84: 43.589956N, 12.510999E), greto fluviale, ca. 335 m, 10 December 2018, *N. Hofmann* (FI, PESA). – Casual alien species new for the flora of Marche.

This perennial grass is naturalized throughout peninsular and insular Italy, except for Valle d'Aosta, Marche, Umbria, and Puglia (Galasso et al. 2018a). In Marche, a few individuals grow in the grassy edge of a riverbed on alluvial sandy soil. The occurrence of *Sporobolus indicus* could be due to the abundant presence in the site of migratory birds (especially ducks), that inhabit riverbanks and contribute to the conveyance of seeds.

L. Gubellini, N. Hofmann

Sporobolus vaginiflorus (Torr. ex A.Gray) Alph.Wood (Poaceae)

+ (NAT) **TOS**: Fiesole (Firenze), fraz. Caldine, stazione ferroviaria di Caldine-Fiesole (WGS84: 43.830543N, 11.308060E), marciapiedi lungo il binario, 169 m, 8 November 2018, *M. Mugnai*, *A. Misuri*, *G. Ferretti* (FI). – Naturalized alien species new for the flora of Toscana.

Sporobolus vaginiflorus is a North American species already present in most of northern regions of Italy (Galasso et al. 2018a). The population reported here displayed several mature fruiting individuals spanning alongside the sidewalks of the Caldine-Fiesole railway station and in the surrounding areas.

M. Mugnai, S. Di Natale, A. Padula

Tulipa clusiana Redouté (Liliaceae)

+ (NAT) **VEN**: Soave (Verona), alla 'Colombara' (WGS84: 45.44168063N, 11.24953327E), boschetto termofilo, 168 m, 2 March 2019, *G. Bommartini*, *G. Zanoni*, *F. Menini* (VER No. FDC7708). – Status change from casual to naturalized alien for the flora of Veneto.

Tulipa clusiana is native to Syria and Persia, in the Middle East (Banfi and Galasso 2010), and is recorded as a casual alien in several central-northern Italian regions, and as naturalized in Piemonte, Lombardia, and Marche (Galasso et al. 2018a). In Veneto, there was only one confirmed report by Busnardo (2000) in Bassano del Grappa (Vicenza). For the Verona province, there is only a historical sample collected by Goiran (1897, 1900, VER) and a recent indication of occasional presence in Custoza (F. Prosser, pers. commun.). In the locality reported here, the population consists of thousands of seedlings, which grow both within a thermophilic grove formed by different species, such as *Dioscorea communis* (L.) Caddick & Wilkin, *Fraxinus ornus* L. subsp. *ornus*, *Ligustrum vulgare* L., *Quercus pubescens* Willd. subsp. *pubescens*, *Robinia pseudoacacia* L., *Rubus ulmifolius* Schott, and *Sambucus nigra* L., and inside olive groves. This species was found in two small woods about 250 meters apart, and more on two other adjacent banks. Other localities have been found on the slopes of Monte Tenda, just above the medieval castle of Soave (WGS84: 45.44145545N, 11.24924856E, 95 m), more than 2 km away from the above-mentioned sites. The total area occupied, albeit discontinuously, by *T. clusiana* is over 10,000 m^2 and hosts thousands of individuals.

G. Bommartini, G. Zanoni, F. Menini, S. Andreatta

Vachellia farnesiana (L.) Wight & Arn. (Fabaceae)

+ (CAS) **CAL**: Bova Marina (Reggio Calabria), loc. Vena (WGS84: 37.937774N, 15.911936E), scarpata bordo strada, 44 m, 27 April 2019, leg. *V.L.A. Laface*, det. *V.L.A. Laface*, *C.M. Musarella*, *G. Spampinato* (FI, REGGIO); Reggio Calabria (Reggio Calabria), Gallico, loc. Pietre della Zita (WGS84: 38.161215N, 15.663414E), scarpata bordo strada, 47 m, 9 October 2019, *V.L.A. Laface* (REGGIO); Brancaleone (Reggio Calabria), loc. Fiumarella (WGS84: 37.982290N, 16.089573E), bordo strada, 35 m, 28 October 2019, *V.L.A. Laface* (REGGIO). – Casual alien species new for the flora of Calabria.

The native range of *Vachellia farnesiana* is considered to be the New World (New 1984), and in particular North America (Gilman and Watson 1993). However, its exact origin is nowadays debated (Luken and Thieret 1996; Roskov 2006). In Europe, it occurs in France, Italy, and Spain (Roskov 2006). Currently, according to Galasso et al. (2018a), it is a casual alien in Sicilia and Sardegna. In this new Calabrian locality, we observed several seedlings near the mature plants. This is the first record for peninsular Italy.

C.M. Musarella, V.L.A. Laface, G. Spampinato

Verbena bonariensis L. (Verbenaceae)

+ (CAS) **FVG**: Gorizia (Gorizia), Borgo Castello, sulle mura del castello subito dopo Porta Leopoldina (WGS84: 45.942638N, 13.628783E), su mura di arenaria, 100 m, 25 April 2019, *F. Roma-Marzio*, *P. Liguori* (FI, *Herb. F. Roma-Marzio*). – Casual alien species new for the flora of Friuli Venezia Giulia.

Verbena bonariensis is native to South America (southern Brazil, Uruguay, Paraguay, northern Argentina) and has been introduced in many countries of Africa, Asia,

Australia, and Europe and in the USA (Munir 2002; Nesom 2010). In Italy, it is reported as naturalized alien in Liguria and as casual in Lombardia, Trentino-Alto Adige, Emilia-Romagna, Toscana, Umbria, and Lazio (Galasso et al. 2018a). About five plants were found on the ancient walls, probably as a result of escaped cultivated plants. Specimens were identified using the key reported by Nesom (2010).

F. Roma-Marzio

Youngia japonica (L.) DC. subsp. *japonica* (Asteraceae)

+ (CAS) **SIC**: Messina (Messina), Rodia, loc. Contrada Marmora, presso il complesso residenziale Baia Verde (WGS84: 38.267442N, 15.478063E), fessure nella pavimentazione del marciapiede e interstizi tra marciapiede e muro, 14 February 2019, *F. Luchino* (FI). – Casual alien species new for the flora of Sicilia.

According to Shi and Kilian (2011), the Sicilian populations of *Youngia japonica* belong to the autonymic subspecies, native probably to China and naturalized in warm areas of all continents (Galasso et al. 2016). The single Italian record of this species in Genova (Liguria) is very recent (Galasso et al. 2016). We found approximately 30 individuals growing inside sidewalk cracks and in shady micro-soil located at the base of the walls. In the same area, the herbaceous vegetation consists mainly of several ruderal species linked to anthropic environments. *Y. japonica* has been observed as alien also in north-eastern Sicilia (A. Crisafulli and R.M. Picone, pers. commun.), namely in Messina along urban roads (Via F. Bisazza), in the flowerbeds and lawns of the Comando Arma dei Carabinieri (near Villa Mazzini) and in Milazzo (Messina) at C.da Scaccia in an uncultivated wet habitat.

F. Luchino, O. Caldarella, A. La Rosa, R. De Luca

Nomenclatural and distribution updates from other literature sources

Nomenclatural, status, and distribution updates according to Saccardo (1909), Viegi et al. (1974), Ricciardi and Anzalone (1988), Greuter et al. (1989), Prosser et al. (2009), Castellano and Spadaro (2011), Licitra and Napoli (2011), Schaefer and Renner (2011), Himmelreich et al. (2012), Pasta (2012), Sebastian et al. (2012), Coulot and Rabaute (2013), Gestri and Peruzzi (2016), Pasta et al. (2016), Thiede (2017), Ardenghi (2018), Carta et al. (2018), Gallo et al. (2018), Rich et al. (2018), Trejo-Torres et al. (2018), Antonietti and Dellavedova (2019), Ardenghi (2019), Badalamenti (2019), Benetti (2019), Berselli et al. (2019), Buccheri et al. (2019), Compton et al. (2019), Del Guacchio et al. (2019), Galasso (2019), Gallo (2019), Gariboldi and Frezzini (2019), Groom (2019), Marchetti (2019), Musarella (2019), Musarella et al. (2019), Pascale and Pellegrino (2019), Paton et al. (2019), Picco et al. (2019), Prosser et al. (2019), Sarmati et al. (2019), Stinca and Mei (2019), Stinca et al. (2019), Verloove et al. (2019), and corrections to Galasso et al. (2018a) are provided in Suppl material 1.

G. Galasso, F. Bartolucci

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Supplementary material I

Supplementary data

Authors: Gabriele Galasso, Fabrizio Bartolucci

Data type: species data

Explanation note: **1.** Nomenclatural updates; **2.** Note updates; **3.** Distribution updates; **4.** Synonyms, misapplied or included names.

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